

# PATENT ABSTRACTS OF JAPAN

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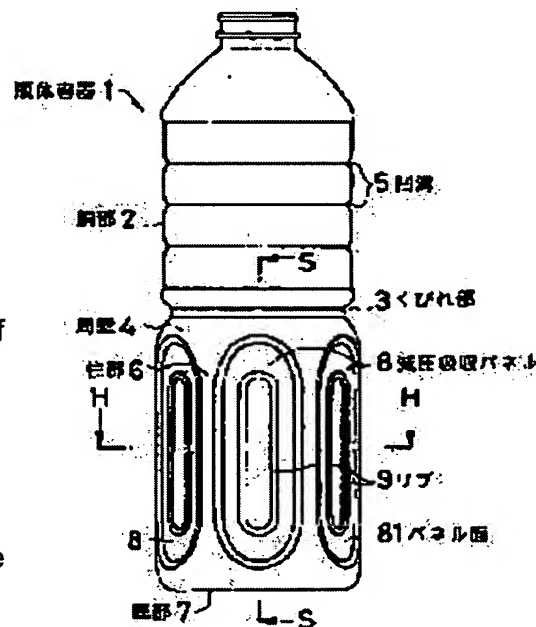
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## (54) BOTTLE BODY CONTAINER

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To prevent failure in processing in a bottle body container of synthetic resin with a decompression/absorption panel on its body by increasing rigidity of the decompression/absorption panel so far as not to obstruct the function of decompression/absorption.

**SOLUTION:** This decompression /absorption panel of the bottle body container is provided with elliptical and annular ribs. Multiple ribs further increase the rigidity of the panel. A panel with ribs may have a transverse cross-sectional configuration of the connection of a plurality of concentric arcs around the center axis of the container.



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CLAIMS

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[Claim(s)]

[Claim 1] The bottle object container characterized by preparing a rib in the shape of a longwise frame in said reduced pressure absorption panel in the bottle object container made of synthetic resin which equipped the drum section with the reduced pressure absorption panel.

[Claim 2] The bottle object container according to claim 1 which prepared the rib in ellipse annular.

[Claim 3] The bottle object container according to claim 1 or 2 which prepared the rib longwise inside the frame-like rib.

[Claim 4] A bottle object container given in any of claims 1-3 constituted so that the configuration of the cross section of a reduced pressure absorption panel might turn into the configuration where two or more concentric circle arcs centering on a container medial axis were connected they are.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the bottle object container made of synthetic resin used for various packages of liquid, such as a soft drink, and alcohol, a seasoning.

[0002]

[Description of the Prior Art] The thing of a configuration of having prepared two or more reduced pressure absorption panels in the container drum section as a bottle object container formed of drawing blow molding using thermoplastics, such as PET, is known. When the flat-surface panel 92 by which the drum section periphery corkscrew twist was also dented in the inner direction, and was extended to longwise band-like at the bottom half section of the drum section 91 which presents the circular cross section is arranged on the drum section perimeter at equal intervals, the interior of a container decompresses, and these panels 92 displace to the method of the inside of a container, this absorbs reduced pressure and prevents [ as shown in drawing 9 , ] that the whole container and other parts carry out contraction deformation.

[0003]

[Problem(s) to be Solved by the Invention] Unlike the drum section peripheral wall constituted by the radii-like curved surface, since the reduced pressure absorption panel prepared in the bottle object container was an almost flat configuration, when distortion remained here, it adhered to metal mold at the time of blow molding or its depressuring of the compressed air for a blow was imperfect in the chip and the forming cycle to rigidity, it had the problem that all became easy to transform a panel and caused poor processing.

[0004] This invention makes it a technical problem to make the rigidity of a reduced pressure absorption panel increase to extent which does not cause trouble to a reduced pressure absorption function in view of such a trouble that the conventional technique has in the bottle object container made of synthetic resin which equipped the drum section with the reduced pressure absorption panel, and to make it poor processing not break out.

[0005]

[Means for Solving the Problem] In order to solve said technical problem, this invention is characterized by having prepared the rib and constituting the bottle object container made of synthetic resin which equipped the drum section with the reduced pressure absorption panel in the shape of a longwise frame, in a reduced pressure absorption panel.

[0006] According to this configuration, since the rib is prepared in the panel, rigidity is given to a panel and it is hard coming to deform a panel. When the rib is prepared in the shape of a frame in the panel and the interior of a container decompresses, the whole panel of the perimeter containing a rib displaces and reduced pressure absorption is performed.

[0007] When a container decompresses, from a panel periphery, a rib opens suitable spacing for the method of inside, and is arranged so that a panel may displace. It is desirable to prepare so that it may be made for a rib to become almost parallel to the periphery concerned along the periphery of a panel and the core of a panel and the core of a rib may be in agreement so that the whole panel may displace uniformly. When a panel is a longwise circle configuration, a rib is prepared in the ellipse annular along a panel periphery.

[0008] If a rib is further prepared longwise inside a frame-like rib, the rigidity of a panel will

increase more. As long as the rib prepared inside is extended longwise, a line or the shape of a frame, and any are sufficient as it.

[0009] In said configuration, it can constitute so that the configuration of the cross section of a reduced pressure absorption panel may turn into the configuration where two or more concentric circle arcs centering on the medial axis of a container were connected. It is thought that the bottle object container of a cylindrical shape has little poor shaping by deformation, rigidity will increase and the body-of-revolution part of the curved-surface configurations where a label is stuck for a drum section, such as a peripheral surface, will stop being able to transform it easily if the drum section wall surface meets the radii centering on a container medial axis. This is applied to a panel and it is hard coming to deform a panel with having prepared the rib in the increase of the rigidity of a panel, and a panel by forming a panel in the configuration where the concentric circle arc centering on a container medial axis was met conjointly.

[0010] The rib prepared in a panel can be formed in the quirk and dome shape which projected by proper width of face from the panel side. the projection direction of a rib -- the method of inside and outside of a container -- which sense is sufficient. When a rib is prepared in a panel multiplex, the projection direction of each rib may be arranged and you may make it project in the different direction.

[0011]

[Embodiment of the Invention] The gestalt of suitable operation of this invention is explained with reference to a drawing. Drawing 1 and drawing 2 show the appearance of the bottle object container of the 1st operation gestalt, and the important section cutting amplification end face. A neck 3 is mostly formed in the center over the perimeter. this container 1 -- a drum section 2 -- Install two or more concaves 5 in a hoop direction side by side at the peripheral wall 4 of the Johan section, and six longwise reduced pressure absorption panels 8 are perpendicularly installed in the peripheral wall 4 of the bottom half section side by side on both sides of a pillar section 6. The bottom half section in which the cylindrical shape and the reduced pressure absorption panel 8 installed [ the cross section ] the Johan section of a drum section 2 side by side is formed so that the cross section may serve as an abbreviation hexagon.

[0012] The reduced pressure absorption panel 8 makes the circumferential wall surface from the neck 3 bottom to a pars-basilaris-ossis-occipitalis 7 upside the flat panel side 81 dented in the ellipse, further, in the panel side 81, forms the rib 9 which projected from the field concerned in the quirk to the method of the outside of a container in the ellipse annular along the periphery of the panel side 81, and has formed it. In detail, a rib 9 makes the core in agreement with the core of the panel side 81, it arranges inside the panel side 81, and the panel side 81 is divided with the rib 9 in the ellipse annular flat side of the perimeter of a rib, and the flat side of the shape of an ellipse of the rib inside. The panel side 81 around a rib 9 serves as the same width of face by the same width of face and the upper and lower sides by right and left of a rib 9.

[0013] Drawing 3 and drawing 4 show the important section appearance of the bottle object container of the 2nd operation gestalt and important section cutting amplification end face from which the gestalt of the reduced pressure absorption panel 8 differs. The reduced-pressure absorption panel 8 of this container 1 makes the circumferential wall surface from the neck 3 bottom to a pars-basilaris-ossis-occipitalis 7 upside the flat panel side 81 dented in the ellipse, forms the ellipse annular rib 9 which projected in the quirk to the method of the outside of a container in the panel side 81, further, forms the linear rib 10 which was dented in the quirk and extended perpendicularly in the method of the inside of a container, and has formed it in it in the rib 9. In detail, the rib 10 is extended [ core / of a rib 9 ] in the same length up and down from the passage and the core concerned, and the inside of a rib 9 is divided with the rib 10 in the ellipse annular flat side.

[0014] Drawing 5 and drawing 6 show the important section appearance of the bottle object container of the 3rd operation gestalt and important section cutting amplification end face from which the gestalt of the reduced pressure absorption panel 8 differs. The reduced-pressure absorption panel 8 of this container 1 makes the circumferential wall surface from the neck 3 bottom to a pars-basilaris-ossis-occipitalis 7 upside the flat panel side 81 dented in the ellipse, forms the ellipse annular rib 9 which projected in the quirk to the method of the inside of a container in the panel side 81, forms the ellipse annular rib 11 which projected in the quirk to the method of the inside of a

container, and has formed it in the panel side 81 inside a rib 9 further. In detail, a rib 11 makes the core in agreement with the core of the panel side 81 and a rib 9, and elongation and the panel side 81 inside a rib 9 are perpendicularly divided with the rib 11 in the ellipse annular flat side and the flat ellipse-like side.

[0015] Drawing 7 and drawing 8 show the important section appearance of the bottle object container of the 4th operation gestalt and important section cutting amplification end face from which the gestalt of the reduced pressure absorption panel 6 differs. Although this container 1 of having formed the reduced pressure absorption panel 8 dented in the ellipse in the circumferential wall surface from the neck 3 bottom to a pars-basilaris-ossis-occipitalis 7 upside, and having prepared in that panel side 81 at the ellipse annular rib 9 and 11 duplexes is the same as that of said gestalt, the configuration of the cross section of the reduced pressure absorption panel 8 is formed in the configuration where two or more concentric circle arcs centering on a container medial axis were connected. As shown in drawing 8, in detail the reduced pressure absorption panel 8 Curved-surface 81a which is the radii centering on the medial axis O of a container 1, and is formed of the radii R1 of a minor diameter from the radii R of the appearance of a pillar section 6, Curved-surface 81b which is similarly the radii centering on a medial axis O, and is formed of the radii R2 of a minor diameter rather than radii R1, It is formed in the configuration which has three curved surfaces of curved-surface 81c formed of the radii R3 of a minor diameter rather than radii R2, and divided with the longwise ribs 9 and 11 in a circle which allotted each curved surface between curved surfaces, and was made to follow one. As for curved-surface 81a, nothing and curved-surface 81b make [ a field ellipse annular in the outside of a rib 9 ] an ellipse-like side for a field ellipse annular in between a rib 9 and ribs 11 by the inside of a rib 11, and, as for nothing and curved-surface 81c, each curved surface divided with both ribs constitutes the reduced pressure absorption panel 8.

[0016] Thus, according to the bottle object container 1 of constituted this invention, since the ellipse annular rib 9 is formed in the reduced pressure absorption panel 8, the rigidity of a panel stops easily being able to cause the deformation in increase and the container forming cycle mentioned above. Since the rib 9 is arranged in the panel side 81, when a panel side does not become the trouble of displacing to the method of the inside of a container but the interior of a container decompresses, the reduced pressure absorption panel 8 whole displaces it uniformly, and it absorbs reduced pressure. If the linear rib 10 is formed inside a rib 9, or the ellipse annular rib 11 is formed and the rib is arranged on multiplex in the reduced pressure absorption panel 8, the rigidity of a panel will increase more. Moreover, if it prepares so that the configuration of the cross section of the reduced pressure absorption panel 8 may turn into the configuration where two or more concentric circle arcs centering on the medial axis O of a container 1 were connected, it will be hard coming to deform a panel with having formed ribs 9 and 11 in the increase of the rigidity of a panel, and a panel conjointly.

[0017]

[Effect of the Invention] According to the bottle object container of this invention, the defect incidence rate of a panel deforming into extent which does not cause trouble to a reduced pressure absorption function in the increase of the rigidity of a reduced pressure absorption panel and a forming cycle becomes small.

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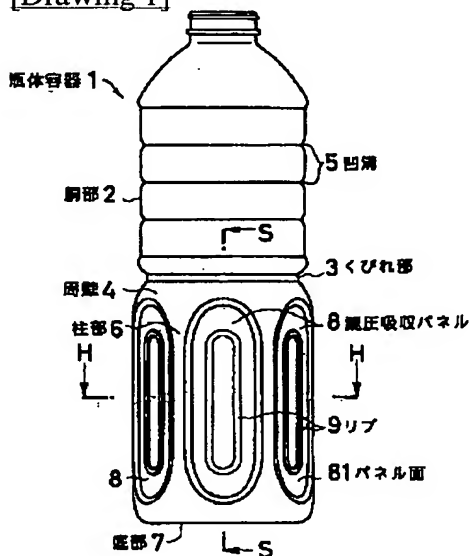
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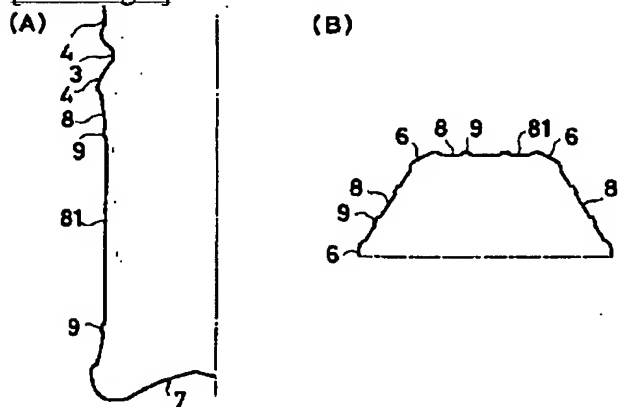
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## DRAWINGS

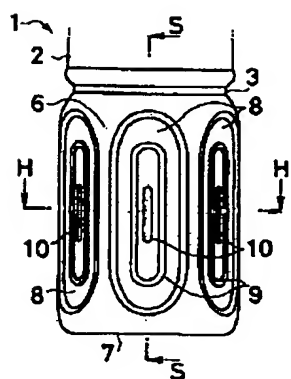
[Drawing 1]



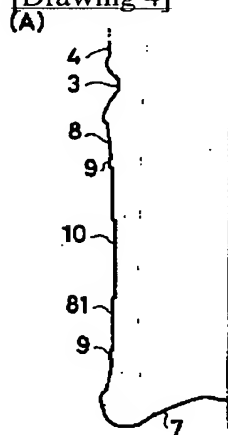
[Drawing 2]



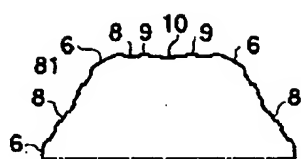
[Drawing 3]



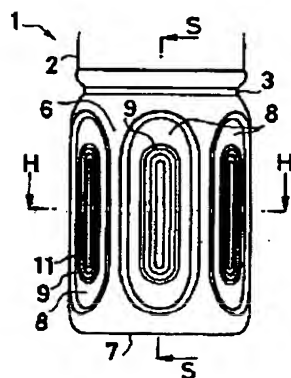
[Drawing 4]



(B)

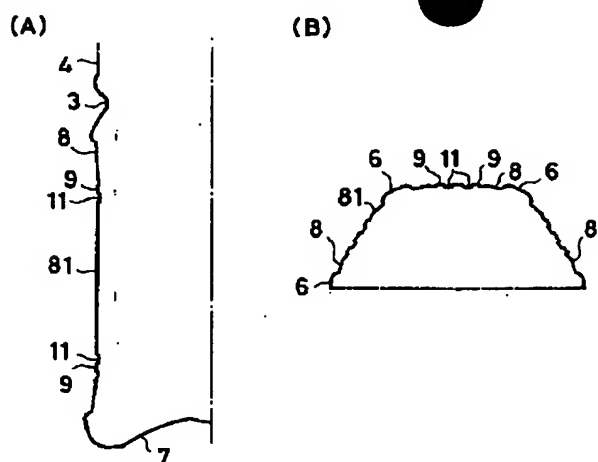


[Drawing 5]

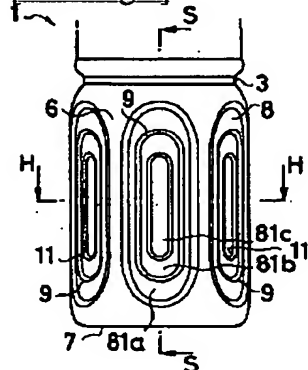


[Drawing 6]

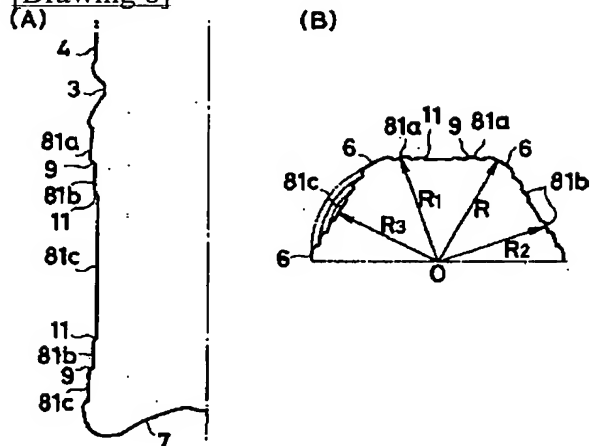




[Drawing 7]

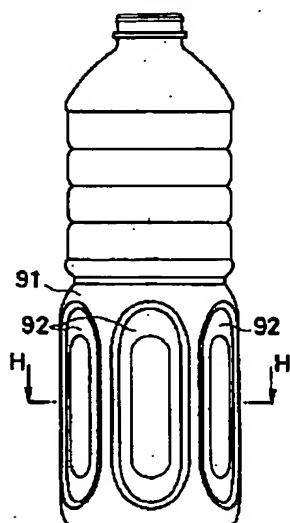


[Drawing 8]

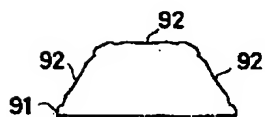


[Drawing 9]

(A)



(B)



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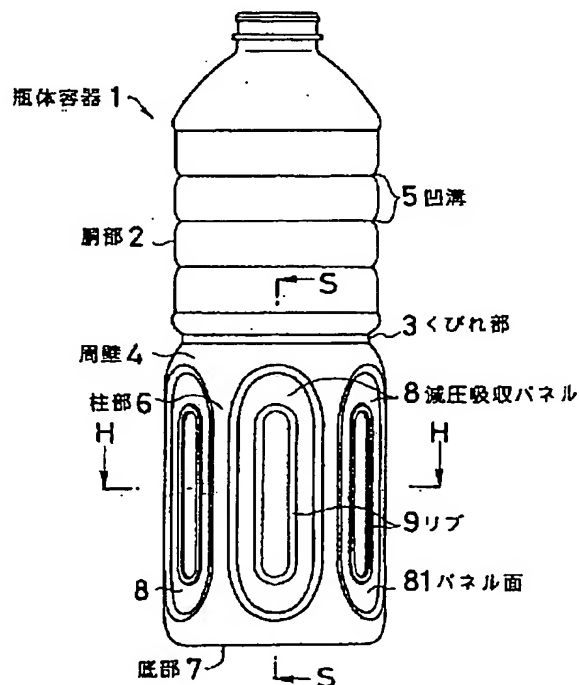
GA02

(54)【発明の名称】 瓶体容器

(57)【要約】

【課題】胸部に減圧吸収パネルを備えた合成樹脂製の瓶体容器において、減圧吸収機能に支障を来さない程度に減圧吸収パネルの剛性を増加させて加工不良が起きないようにする。

【解決手段】瓶体容器の減圧吸収パネル内に、縦長円環状にリブを設ける。多重にリブを設ければ、パネルの剛性はさらに増す。リブを設けたパネルを、その横断面の形状が容器中心軸を中心とした複数の同心円弧をつなげた形状となるように構成してもよい。



## 【特許請求の範囲】

【請求項 1】 胴部に減圧吸収パネルを備えた合成樹脂製の瓶体容器において、前記減圧吸収パネル内に、縦長枠状にリブを設けたことを特徴とする瓶体容器。

【請求項 2】 リブを長円環状に設けた請求項 1 に記載の瓶体容器。

【請求項 3】 枠状リブの内側に縦長にリブを設けた請求項 1 又は 2 に記載の瓶体容器。

【請求項 4】 減圧吸収パネルの横断面の形状が、容器中心軸を中心とした複数の同心円弧をつなげた形状となるように構成した請求項 1 から 3 の何れかに記載の瓶体容器。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】本発明は、清涼飲料や酒、調味料など種々の液類の包装に利用される合成樹脂製の瓶体容器に関する。

## 【0002】

【従来の技術】PETなどの熱可塑性樹脂を用い、延伸ブロー成形により形成される瓶体容器として、容器胴部に複数の減圧吸収パネルを設けた構成のものが知られている。これは、図 9 に示されるように、円形横断面を呈する胴部 91 の下半部に、胴部周壁よりも内方に凹んで縦長帯状に伸びた平面パネル 92 が胴部全周に等間隔に配され、容器内部が減圧したときに、これらパネル 92 が容器内方に変位することにより減圧を吸収し、容器全体や他の部分が収縮変形することを防止するようになっている。

## 【0003】

【発明が解決しようとする課題】瓶体容器に設けられた減圧吸収パネルは、円弧状の曲面により構成される胴部周壁と異なり、ほぼ平坦な形状であるため剛性に欠け、成形工程において、ここに歪みが残ったり、ブロー成型時に金型に粘着したり、或いはブロー用圧空の脱圧が不完全であったりすると、何れもパネルが変形しやすくなって加工不良を引き起すという問題があった。

【0004】本発明は従来技術の有するこのような問題点に鑑み、胴部に減圧吸収パネルを備えた合成樹脂製の瓶体容器において、減圧吸収機能に支障を来さない程度に減圧吸収パネルの剛性を増加させて加工不良が起きないようにすることを課題とする。

## 【0005】

【課題を解決するための手段】前記課題を解決するため本発明は、胴部に減圧吸収パネルを備えた合成樹脂製の瓶体容器を、減圧吸収パネル内に、縦長枠状にリブを設けて構成したことを特徴とする。

【0006】この構成によれば、パネル内にリブが設けられているので、パネルに剛性が付与され、パネルが変形し難くなる。リブはパネル内に枠状に設けてあり、容器内部が減圧したときに、リブを含む周囲のパネル全体が変

位して減圧吸収が行われる。

【0007】容器が減圧したときにパネルが変位するように、リブはパネル周縁より内方に適当な間隔を開けて配置される。パネル全体が均等に変位するよう、リブはパネルの周縁に沿って当該周縁とほぼ平行となるようにし、パネルの中心とリブの中心とが一致するように設けることが好ましい。パネルが縦長円形状の場合、リブはパネル周縁に沿った長円環状に設けられる。

【0008】枠状リブの内側にさらにリブを縦長に設ければパネルの剛性がより増加する。内側に設けるリブは、縦長に伸びたものであれば、線状でも枠状でも何れでもよい。

【0009】前記構成において、減圧吸収パネルの横断面の形状が容器の中心軸を中心とした複数の同心円弧をつなげた形状となるように構成することができる。胴部が円筒形の瓶体容器は、ラベルが貼り付けられる周面などの曲面形状の回転体部分は変形による成形不良が少なく、胴部壁面が容器中心軸を中心とした円弧に沿っていれば剛性が増して変形し難くなると考えられる。これをパネルに適用し、容器中心軸を中心とした同心円弧に沿った形状にパネルを形成することで、パネルの剛性が増し、パネル内にリブが設けてあることと相まって、パネルが変形し難くなる。

【0010】パネル内に設けるリブは、パネル面から適宜な幅で突出した溝形やドーム形に形成することができる。リブの突出方向は容器の内外方何れの向きでもよい。パネル内に多重にリブを設けたときは、各リブの突出方向を揃えてもよいし異方向に突出させてもよい。

## 【0011】

【発明の実施の形態】図面を参照して本発明の好適な実施の形態を説明する。図 1 及び図 2 は第 1 実施形態の瓶体容器の外観と要部切断拡大端面を示している。この容器 1 は、胴部 2 のほぼ中央にくびれ部 3 を全周にわたって設け、その上半部の周壁 4 に複数本の凹溝 5 を周方向に並設し、下半部の周壁 4 には縦長の六つの減圧吸収パネル 8 を柱部 6 を挟んで縦に並設し、胴部 2 の上半部はその横断面が円筒形、減圧吸収パネル 8 が並設した下半部はその横断面が略六角形となるように形成してある。

【0012】減圧吸収パネル 8 は、くびれ部 3 の下側から底部 7 の上側に至る周壁面を長円形に凹んだ平坦なパネル面 81 とし、さらにパネル面 81 内に当該面から容器外方へ溝形に突出したリブ 9 をパネル面 81 の周縁に沿った長円環状に設けて形成してある。詳しくは、リブ 9 はその中心をパネル面 81 の中心に一致させてパネル面 81 の内側に配置してあり、パネル面 81 はリブ 9 により、リブ周囲の長円環状の平坦面とリブ内側の長円状の平坦面とに区画されている。リブ 9 の周囲のパネル面 81 は、リブ 9 の左右で同じ幅、上下で同じ幅となっている。

【0013】図 3 及び図 4 は減圧吸収パネル 8 の形態が

異なる第2実施形態の瓶体容器の要部外観と要部切断拡大端面を示している。この容器1の減圧吸収パネル8は、くびれ部3の下側から底部7の上側に至る周壁面を長円形に凹んだ平坦なパネル面81とし、パネル面81内に容器外方へ溝形に突出した長円環状のリブ9を設け、さらにリブ9内に容器内方へ溝形に凹んで縦に伸びた線状のリブ10を設けて形成してある。詳しくは、リブ10はリブ9の中心を通り、且つ当該中心から上下に同じ長さ伸びており、リブ9の内側はリブ10により長円環状の平坦面に区画されている。

【0014】図5及び図6は減圧吸収パネル8の形態が異なる第3実施形態の瓶体容器の要部外観と要部切断拡大端面を示している。この容器1の減圧吸収パネル8は、くびれ部3の下側から底部7の上側に至る周壁面を長円形に凹んだ平坦なパネル面81とし、パネル面81内に容器内方へ溝形に突出した長円環状のリブ9を設け、さらにリブ9の内側のパネル面81内に容器内方へ溝形に突出した長円環状のリブ11を設けて形成してある。詳しくは、リブ11はその中心をパネル面81及びリブ9の中心に一致させて縦に伸び、リブ9の内側のパネル面81はリブ11により、長円環状の平坦面と長円状の平坦面とに区画されている。

【0015】図7及び図8は減圧吸収パネル6の形態が異なる第4実施形態の瓶体容器の要部外観と要部切断拡大端面を示している。この容器1は、くびれ部3の下側から底部7の上側に至る周壁面を長円形に凹んだ減圧吸収パネル8を設け、そのパネル面81内に、長円環状のリブ9、11二重に設けたことは前記形態と同様であるが、減圧吸収パネル8の横断面の形状が、容器中心軸を中心とした複数の同心円弧をつなげた形状に形成してある。詳しくは、図8に示されるように、減圧吸収パネル8は、容器1の中心軸Oを中心とした円弧であって柱部6の外形の円弧Rよりも小径の円弧R1により形成される曲面81aと、同じく中心軸Oを中心とした円弧であって円弧R1よりも小径の円弧R2により形成される曲面81bと、円弧R2よりも小径の円弧R3により形成される曲面81cの三つの曲面を有し、各曲面を、曲面間に配した縦長円環状のリブ9、11で区画し、且つ一体に連続させた形状に形成されている。両リブにより区画された各曲面は、曲面81aはリブ9の外側で長円環状の面をなし、曲面81bはリブ9とリブ11の間で長円環状の面をなし、曲面81cはリブ11の内側で長円状の面をなして減圧吸収パネル8を構成している。

【0016】このように構成された本発明の瓶体容器1によれば、減圧吸収パネル8内に長円環状のリブ9を設けてあるので、パネルの剛性が増し、前述した容器成形工程における変形を来し難くなる。リブ9はパネル面8

1内に配置してあるから、パネル面が容器内方に変位することの支障とはならず、容器内部が減圧したときには減圧吸収パネル8全体が均等に変位して減圧を吸収する。リブ9の内側に線状のリブ10を設けたり長円環状のリブ11を設けたりするなどして減圧吸収パネル8内にリブが多重に配されていれば、パネルの剛性はより増加する。また、減圧吸収パネル8の横断面の形状が容器1の中心軸Oを中心とした複数の同心円弧をつなげた形状となるように設ければ、パネルの剛性が増し、パネル内にリブ9、11が設けてあることと相まってパネルが変形し難くなる。

【0017】

【発明の効果】本発明の瓶体容器によれば、減圧吸収機能に支障を来さない程度に減圧吸収パネルの剛性が増し、成形工程においてパネルが変形するなどの不良発生率が小さくなる。

【図面の簡単な説明】

【図1】本発明の第1実施形態の瓶体容器の外観図である。

【図2】図1のS-S線に沿った要部切断拡大端面図(A)と、H-H線に沿った要部切断拡大端面図(B)である。

【図3】本発明の第2実施形態の瓶体容器の下半部の外観図である。

【図4】図3のS-S線に沿った要部切断拡大端面図(A)と、H-H線に沿った要部切断拡大端面図(B)である。

【図5】本発明の第3実施形態の瓶体容器の下半部の外観図である。

【図6】図5のS-S線に沿った要部切断拡大端面図(A)と、H-H線に沿った要部切断拡大端面図(B)である。

【図7】本発明の第4実施形態の瓶体容器の下半部の外観図である。

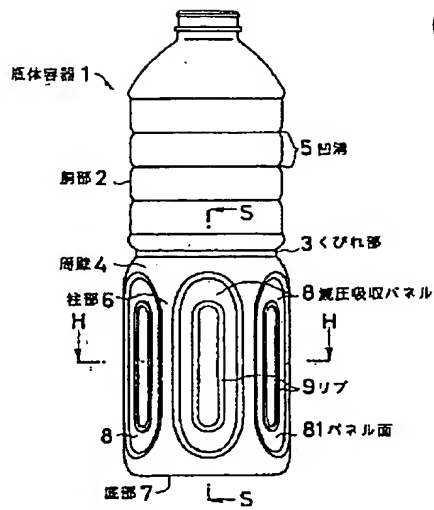
【図8】図7のS-S線に沿った要部切断拡大端面図(A)と、H-H線に沿った要部切断拡大端面図(B)である。

【図9】従来の瓶体容器の外観図(A)とH-H線に沿った要部切断端面図(B)である。

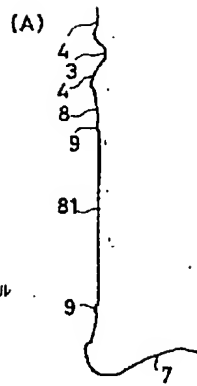
【符号の説明】

- 1 瓶体容器
- 2 胴部
- 3 くびれ部
- 4 周壁
- 8 減圧吸収パネル
- 81、81a、81b、81c パネル面
- 9、10、11 リブ

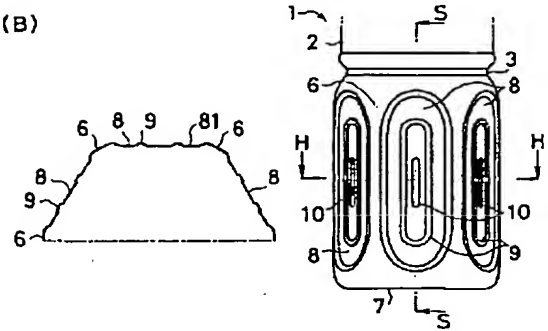
【図1】



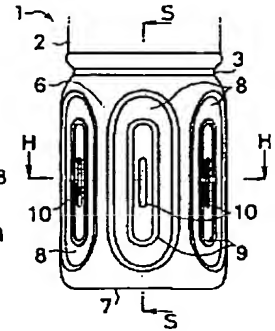
【図2】



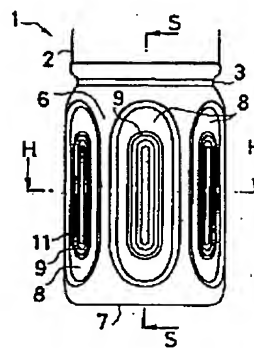
(B)



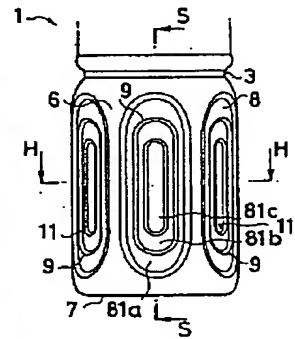
【図3】



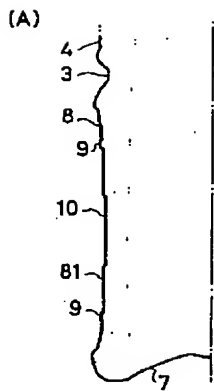
【図5】



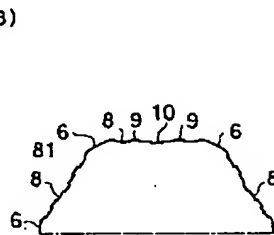
【図7】



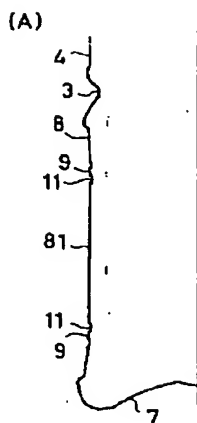
【図4】



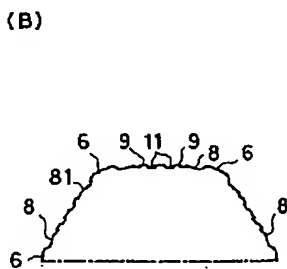
(B)



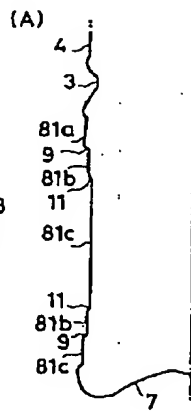
【図6】



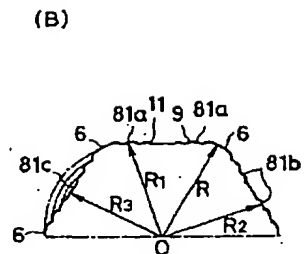
(B)



【図8】

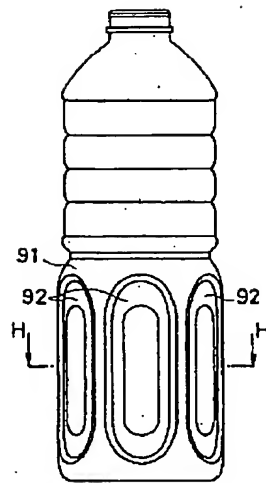


(B)



【図9】

(A)



(B)

